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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/516,365

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Isamu Yoshii

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EXAMINER

PERILLA, JASON M

ART UNIT

PAPER NUMBER

2611

MAIL DATE

DELIVERY MODE

08/07/2007

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/516,365

Applicant(s)

YOSHII ET AL.

Examiner

Jason M. Perilla

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 01 December 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-9 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-9 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 01 December 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. Claims 1-9 are pending in the instant application.
- 2.

Information Disclosure Statement

3. The information disclosure statement (IDS) submitted on March 8, 2005 is in compliance with the provisions of 37 CFR 1.97. Accordingly, the information disclosure statement is being considered by the examiner.
- 4.

Claim Objections

5. Claim 4 is objected to because of the following informalities:
Regarding claim 4, in line 7, "BLERs" must be defined in the claim.
Appropriate correction is required.

Claim Rejections - 35 USC § 112

6. The following is a quotation of the second paragraph of 35 U.S.C. § 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.
7. Claim 6 is rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Regarding claim 6, the claim is indefinite because one skilled in the art is unable to determine what additional limitation is imparted by the claim. The claim suggests

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only that the determination section regards the minimum reception quality for reception without errors to be the minimum reception quality without errors.

Claim Rejections - 35 USC § 103

8. The following is a quotation of 35 U.S.C. § 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

9. Claims 1-9 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Zhu et al (U.S. Pat. No. 7043210; "Zhu") in view of Ohkubo et al (U.S. Pub. No. 20010046877; "Ohkubo" – cited in 3/8/05 IDS).

Regarding claim 1, Zhu discloses a transmit apparatus (fig. 2) comprising: transmitting a symbol including a first layer code string (i.e. fig. 6, ref. B0) and a second layer code string (i.e. fig. 6, ref. B1) having hierarchically different error rates (col. 5, lines 45-60; col. 2, lines 10-30); and receiving feedback (ACQ) from a receiver to verify if the various layers of the transmitted symbol were received by a receiver (col. 6, lines 20-45). In the invention of Zhu, the multi-layer code string symbol is transmitted, and, depending upon the receipt of a transmit acknowledge, any lost information may be retransmitted using the same or a different modulation scheme (col. 6, line 45 - col. 7, line 20). Zhu does not disclose the use of a determining section that determines transmit power, and a storage section that stores a target value with respect to a ratio of mobile stations receiving both said first layer code string and said second layer code

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string without errors, wherein said determining section determines to increase transmit power of said symbol when said ratio is less than said target value. That is, Zhu may change the modulation scheme for re-transmission upon determining that a transmitted signal was not received, but Zhu does not disclose altering the power level of the re-transmission. However using feedback to alter a transmission power level is notoriously known in the art and Ohkubo discloses such a method (fig. 1; ¶ 0013). In an analogous field of art, Ohkubo discloses transmitting a multicast (to several receiver) signal (¶ 0004). This multicast signal is received at a plurality of mobile receivers (¶ 0014). The receivers that are not properly able to decode the received message send feedback to the transmitter in the form of automatic repeat request (ARQ) signals (¶ 0016, 0092). The transmitter, in turn, counts the number of ARQ signals it receives, and, depending upon the count value, increases or decreases the transmit power of the multicast signal (¶ 0092, 0093). Ohkubo teaches that power control at the transmitter side is advantageous because it alleviates interference caused by inefficient use of transmission power (¶ 0010). Therefore, it would have been obvious to one having ordinary skill in the art at the time which the invention was made that the modulation scheme adjusting method of Zhu could be replaced or augmented with the power control method of Ohkubo based upon the feedback of receivers so that interference could be reduced. In the combination of Zhu in view of Ohkubo, as disclosed by Ohkubo, the desired "ratio" of receivers that are able to decode a transmission is 100 percent of the receivers (i.e. anything more than zero ARQ signal count; ¶ 0094).

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Furthermore, it is inherent that some "storage section" maintains this ratio value as it is predetermined by the transmitter and utilized during its mode of operation.

Regarding claim 2, Zhu in view of Ohkubo disclose the limitations of claim 1 as applied above. Further, Zhu discloses that the error rate of said first layer code string is smaller than the error rate of said second layer code string (fig. 8). Figure 8 illustrated the various levels of code strings (i.e. packets 1-4). Packet 1 is the most significant bits and packet 4 is the least significant bits. At the side of the receiver (64), packets 1 and 2 are correction received ("YES") and packets 3-4 are not correctly received ("NO"). The receiver sends feedback info ("ARQ") to request the re-transmission of packets 3 and 4 (col. 6, lines 20-55). In the combination of Zhu in view of Obkubo, upon receipt of the ARQ requests of packets 3 and 4, power would be increased. Therefore, in the combination of Zhu in view of Obkubo, said transmit power determining apparatus further comprises a ratio calculation section that calculates said ratio from the total number of mobile stations in the cell and the number of mobile stations which have received said second layer code string without errors. That is, because the ARQ requests are (at least in the present example) associated with the secondary layer code strings (i.e. packets 3 and 4), the ratio is determined according to them.

Regarding claim 3, Zhu in view of Ohkubo disclose the limitations of claim 1 as applied above. Further, Ohkubo discloses that when said ratio is equal to or greater than said target value (i.e. more than 0 receivers return an ARQ request), said determining section determines to increase transmit power of said symbol when at least one of a plurality of mobile stations sends an instruction for increasing transmit power

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and determines to decrease transmit power of said symbol when all of the plurality of mobile stations send instructions (i.e. lack of ARQ) for decreasing transmit power (§ 0094).

Regarding claim 4, Zhu in view of Ohkubo disclose the limitations of claim 1 as applied above. Further, Zhu in view of Ohkubo disclose the remaining limitations of the claim as applied to claim 2 above. As applied to claim 2 above, the error rate of the second later codes (i.e. packets 3 and 4) is higher than for the first layer codes (i.e. packets 1 and 2) according to the encoding implementation of Zhu. Furthermore, Zhu in view of Ohkubo discloses calculating a total number of BLERs (§ 0094) but do not explicitly disclose that the calculation section calculates an average value of said second layer code string BLERs. However, the use of averages is notoriously known in the art, and one skilled in the art would have found it obvious to implement one of a number of various calculations for calculating the ratio of BLER's required to cause an increase or decrease in the power transmission level. (Official notice is taken with respect to calculating an average BLER.)

Regarding claim 5, Zhu in view of Ohkubo disclose the limitations of claim 1 as applied above. Further, Zhu discloses that the error rate of said first layer code string is smaller than the error rate of said second layer code string, and said determining section determines an amount of increase of transmit power of said symbol based on a difference between reception quality at a mobile station and reception quality necessary to receive said second layer code string without errors as applied to claim 2 above. Ohkubo discloses that, unless the number of ARQ feedback responses is zero, power

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will be increased (§ 0094). Therefore, the transmit power is increased to the amount necessary to receive said second layer code string without errors.

Regarding claim 6, Zhu in view of Ohkubo disclose the limitations of claim 1 as applied above. Further, as broadly as claimed, the minimum reception quality for reception without errors is considered to be the minimum reception quality without errors.

Regarding claims 7-9, Zhu in view of Ohkubo disclose the limitations of the claims as applied to claim 1 above.


Conclusion

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jason M. Perilla whose telephone number is (571) 272-3055. The examiner can normally be reached on M-F 8-5 EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Chieh M. Fan can be reached on (571) 272-3042. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.


Jason M. Perilla
August 2, 2007

jmp


CHIEH M. FAN
SUPERVISORY PATENT EXAMINER